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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,086	01/20/2004	Michael C. Dadalas	58509US002	1437
32692	7590	06/17/2004	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY				
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ART UNIT			PAPER NUMBER	
1713				

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,086

Applicant(s)

DADALAS ET AL.

Examiner

Henry S. Hu

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 1 and 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 1 and 3 are objected to because of the following informalities:

(a) On Claim 1 at line 9, recitation “VTT” is suggested to carry with the full name as “**Viscosity Transition Temperature (VTT)**” in the same way used in page 21 at line 16.

Otherwise, it may be confusing to one having ordinary skill in the art.

(b) On Claim 3 at line 3, recitation “HLB” is suggested to carry with the full name as “**Hydrophilic Lypophilic Balance (HLB)**” in the same way used in page 8 at line 13.

Otherwise, it may be confusing to one having ordinary skill in the art.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9 and 10 provide for the use of an aqueous fluoropolymer dispersion, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 9 and 10 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. *The limitation of parent Claim 1 of the present invention relates to fluoropolymer dispersion comprising fluoropolymer particles having an average particle size of 10-400 nm dispersed in water, said dispersion having a solids content of 35-70 by weight, said dispersion being free of fluorinated surfactant having a molecular weight of less than 1000 g/mol or containing said fluorinated surfactant having a molecular weight of less than 1000 g/mol in an amount of not more than 0.05 % by weight based on the total weight solids of said dispersion, said dispersion further comprising a non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants and one or more non-fluorinated anionic surfactants, characterized in that the amount and nature of said non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants is selected such that the VTT of said fluoropolymer dispersion is at least 26°C and that the fluoropolymer dispersion is essentially free of aromatic group containing non-ionic surfactants. See other limitations of dependent Claims 2-11.*

6. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McCarthy et al. (US 5,955,556).

Regarding the limitation of parent **Claim 1**, McCarthy et al. disclose the preparation of a stable aqueous self-dispersible fluorinated copolymer dispersion of up to 48% polymer solids in water in the absence of surfactant due to improved conversion rate of monomer to polymer (abstract, line 1-11). McCarthy et al. further disclose during polymerization process, fluoropolymer macromolecules are produced having inorganic, “surfactant-like” functional end groups which impart excellent latex stability to the polymer even these end groups are present in very low concentration (column 6, line 61-65). McCarthy et al. furthermore disclose that various types of commercially available surfactants may be optionally added, it may include non-ionic, anionic or cationic type surfactants, and it also may be fluorinated or non-fluorinated (column 8, line 5-23). With respect to the claimed particle size of 10-400 nm, McCarthy et al. have disclosed that mono-dispersed particles with a narrow distribution on size of 0.1-0.4 micron are obtained (column 7, line 58-66).

However, the reference is **silent of the specific properties such as VTT of said fluoropolymer dispersion being at least 26°C**. In light of the fact that the prior art and the present invention recite **(a) substantially identical polymer composition and (b) obtaining the same type of emulsion polymerization process**, a reasonable basis exists to believe that the products of the invention inherently possess the same properties. Since PTO does not have

proper means to conduct experiments, the burden of proof is now shifted to Applicants to show otherwise. *In re Best*, 195 USPQ 430 (CCPA 1977).

It has been held that where applicant claims a composition in terms of function, property or characteristic where said function is not explicitly shown by the reference and where the examiner has explained why the function, property or characteristic is considered inherent in the prior art, it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon the applicant to provide clear evidence that the respective compositions do in fact differ. *In re Best*, 195 USPQ 430, 433 (CCPA 1977); *In re Fitzgerald et al.*, 205 USPQ 594, 596 (CCPA 1980).

7. Regarding **Claim 2**, non-ionic and non-fluorinated surfactants such as alkylpolyoxyethylene alcohols are included optionally by McCarthy et al. (column 8, line 19-22). **Its structure does read on the claimed formula (I) when m is 0, R¹ is alkyl and R² is hydrogen.**

Regarding **Claim 3**, since the same non-ionic and non-fluorinated surfactants are used, they will carry the same or similar HLB values.

Regarding **Claims 6 and 7**, all conventional surfactants can be included in the process of McCarthy (column 8, line 19-22; column 9, line 57 – column 10, line 17) as long as they can be effective surfactants. Therefore, the claimed ethoxylated acetylenic diols are not ruled out.

Regarding **Claim 8**, fluoroolefins such as TFE can be specifically used in the process of McCarthy (column 3, line 55).

Regarding **Claims 9 and 10**, the resulting fluoropolymer dispersions made by McCarthy may be used in resin and coating applications on various substrates (abstract, line 9-11; column 10, line 39-52).

Regarding the process **Claim 11**, McCarthy's stable aqueous self-dispersible fluorinated copolymer dispersion prepared from above may be up to 48% polymer solids (abstract, line 7-9; column 1, line 8-18; see working examples).

Remaining dependent **Claims 4 and 5** are thereby rejected with the above rejection for Claims 1-3 and 6-11.

8. Claims 1 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Oxenrider et al. (US 5,453,477).

Regarding the limitation of parent **Claim 1**, Oxenrider et al. disclose preparation of stable aqueous fluorinated copolymer dispersion in the absence of soaps or surfactants due to improved wettability of polymer particles (abstract, line 1-12; column 3, line 18-23; column 16, line 18-31). Oxenrider et al. further disclose that copolymers can be made from combination of fluoroolefin(s) and nonfluoroolefin(s) (column 3, line 59 – column 4, line 5; column 7, line 42-57). With respect to the claimed particle size of 10-400 nm, Oxenrider et al. have disclosed that dispersed particles in the stable aqueous suspension on size of 0.01-1 micron are obtained (column 7, line 42-46).

However, the reference is **silent of the specific properties as VTT of said fluoropolymer dispersion is at least 26°C**. In light of the fact that the prior art and the present invention recite **(a) substantially identical polymer composition and (b) obtaining the same type of emulsion polymerization process**, a reasonable basis exists to believe that the products of the invention inherently possess the same properties. Since PTO does not have proper means to conduct experiments, the burden of proof is now shifted to Applicants to show otherwise. *In re Best*, 195 USPQ 430 (CCPA 1977).

It has been held that where applicant claims a composition in terms of function, property or characteristic where said function is not explicitly shown by the reference and where the examiner has explained why the function, property or characteristic is considered inherent in the prior art, it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon the applicant to provide clear evidence that the respective compositions do in fact differ. *In re Best*, 195 USPQ 430, 433 (CCPA 1977); *In re Fitzgerald et al.*, 205 USPQ 594, 596 (CCPA 1980).

9. Regarding **Claim 8**, fluoroolefins such as TFE can be specifically used with CTFE monomer in the process of Oxenrider (column 9, line 13-23).

Regarding **Claimed 9 and 10**, the resulting fluoropolymer dispersions made by Oxenrider may be used in resin and coating applications on various substrates to form a variety of articles (column 9, line 24-67).

10. Claims 2-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oxenrider et al. (US 5,453,477) in view of McCarthy et al. (US 5,955,556).

Regarding the limitation of **Claims 2-7 and 11, which** are dependent from or relate to Claim 1, the discussion of the disclosure of the prior art of **Oxenrider for Claims 1 and 8-10** of this office action is incorporated here by reference. The discussion of the disclosure of the prior art of **McCarthy for Claims 1-11** of this office action is also incorporated here by reference. **Oxenrider is silent about specifically using non-ionic non-fluorinated surfactant.** McCarthy et al. teach that various types of commercially available surfactants may optionally be pre-charged or batchwise added, and it includes non-ionic non-fluorinated surfactants such as alkylpolyoxyethylene alcohols and the like (column 8, line 5-23). The advantage is such addition of conventional surfactants in the preparation of dispersions will effectively improve the stability of aqueous dispersion (column 8, line 5 – column 9, line 20).

In light of the fact that polymeric dispersions produced by Oxenrider and McCarthy, are containing the same type of fluoropolymers, which can be self-dispersible. Therefore, one having ordinary skill in the art would have found it obvious to modify Oxenrider's process by additionally including commercially available conventional surfactants in the course of polymerization or post polymerization, specifically non-ionic non-fluorinated surfactants such as alkylpolyoxyethylene alcohols and the like as taught by McCarthy with an advantage to obtain more stabilized aqueous fluoropolymer dispersions in an effective way.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to process of making a fluoropolymer dispersion being free of fluorinated surfactant and having a VTT at least 26°C:

US Patent No. 4,623,487 to Cope discloses that a process for recovery of fluorosurfactants from an aqueous medium (abstract, line 1-9). Although it is a high-yield recover and the surfactant can be reused (column 1, line 12-17). **Cope does not disclose the recovery can obtain dispersion having fluorosurfactants less than 0.05% by weight.** Additionally, VTT value for dispersions is not disclosed.

US Patent No. 6,429,258 to Morgan et al. only disclose that the aqueous dispersion polymerization process to prepare PTFE or its copolymers can be processed in the presence of a combination of fluorosurfactants with one of which is PFPE carboxylic acid or salt (abstract, line 1-3; column 11, line 25-50), as well as some organic compound such as 1,1,2-trichloro-1,2,2-trifluoroethane (R-113) (column 3, line 10-15). No claimed surfactant-free process is disclosed.

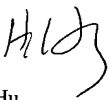
US Patent No. 3,345,317 to Hoashi discloses that the aqueous dispersion polymerization process to prepare PTFE or its copolymers can be processed and stabilized with the presence of some organic compound such as trifluorotrichloroethane, particularly 1,1,2-trifluoro-1,2,2-trichloroethane (column 2, line 32-34; column 3, line 36-37). No claimed surfactant-free process is disclosed.

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12. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is (571) 272-1103. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306 for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Henry S. Hu

June 14, 2004


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